

AIR WAR COLLEGE

AIR UNIVERSITY

THE OPERATIONS SUPPORT FACILITY: AT THE
INTERSECTION OF FUTURE THREATS AND CENTRALIZED
CONTROL & DECENTRALIZED EXECUTIONS

by

Brett D. Sharp, Col, USAF

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Biography

Colonel Brett Sharp is an Air War College student at Maxwell Air Force Base, Alabama. Prior to Air War College, Colonel Sharp served as Chief of the Air and Space Operations Center Integration Branch, Headquarters Air Combat Command, where he was responsible for planning modernization and technology integration into the Air Operations Center. In 2008, he deployed as Commander of the North Atlantic Treaty Organization International Security Assistance Force, Provincial Reconstruction Team, located at Forward Operating Base Gardez in Afghanistan, leading efforts to support governance and development in Paktya Province Afghanistan. Colonel Sharp also deployed to Baghdad, Iraq in 2005 supporting Operation IRAQI FREEDOM as a member of the Air Component Coordination Element, conducting liaison activities between the USAFCENT Air Operations Center and Multi-National Corp-Iraq and planning joint theater intelligence, surveillance and reconnaissance strategy and missions.

A master air battle manager with over 3600 flying hours, including 555 combat hours and 321 combat support hours in the E-3 AWACS, US Navy E-2C Hawkeye, and E-8C JSTARS aircraft, Colonel Sharp has participated in Operations DESERT STORM, SOUTHERN WATCH, DENY FLIGHT, DELIBERATE FORCE, and ENDURING FREEDOM. He is a Distinguished Graduate of the Air Command and Staff College and served on the Air Command and Staff College faculty. He holds an undergraduate degree in Electrical Engineering from Texas A&M University and a Masters of Business Administration from Oklahoma City University. His military decorations include the Bronze Star, Meritorious Service Medal with five oak leaf clusters, Air Medal with three oak leaf clusters, Aerial Achievement Medal, Air Force Commendation Medal with one oak leaf cluster and Navy Commendation Medal.

Introduction

The Joint Forces Air and Space Component Commander (JFACC), by definition, must “plan, task, and control joint air and space operations.”¹ The Air Operations Center is organized and equipped to enable the JFACC to do just that.² The Air Operations Center has grown in capability and complexity over the years to support the JFACC’s command and control (C2) needs consistent with the enduring tenet of centralized control and decentralized execution. This growth has come with additional costs, particularly in manpower and technical sustainment. Given growing budget constraints, the Air Force is coming under increasing pressure to reduce the costs of its Air Operations Center fleet, while ensuring they remain mission effective. One proposed solution to address this challenge is the Operations Support Facility construct.

The Operations Support Facility construct centers on a US-based facility that leverages the Global Information Grid to provide pooled mission and data backup capabilities to existing Air Operations Centers. By pooling resources from a shared facility, the concept aims to reduce the size of Component Numbered Air Force Air Operations Centers, reduce enterprise costs, increase mission survivability, and increase training capabilities without losing combat capability.¹ Critics charge, however, that the Operations Support Facility would increase risk by degrading the central air power tenet of centralized control/decentralized execution.

To explore this risk in greater detail, this paper examines whether the Operations Support Facility construct sustains or degrades the tenet of centralized control/decentralized execution

¹ Per Headquarters United States Air Force Program Action Directive 06-09 (pg A-7), the Component Numbered Air Force Air Operations Centers and the Eleventh Air Force Air Operations Center, are considered the operational Air Operations Centers and are the targeted customers of the Operations Support Facility, though other non-component Air Operations Centers could request support. The Component Numbered Air Forces are the organizational construct by which the Air Force will organize to provide C2 of its forces in support of the Joint Force Commander [Air Force Forces Command and Control Enabling Concept – Change 2, Pg 2, and Headquarters United States Air Force Program Action Directive 06-09, pg A-3]

given the anticipated C2 environment over the next 20 years. To answer this question, the paper conducts analysis in a stepwise fashion as shown in Figure 1.

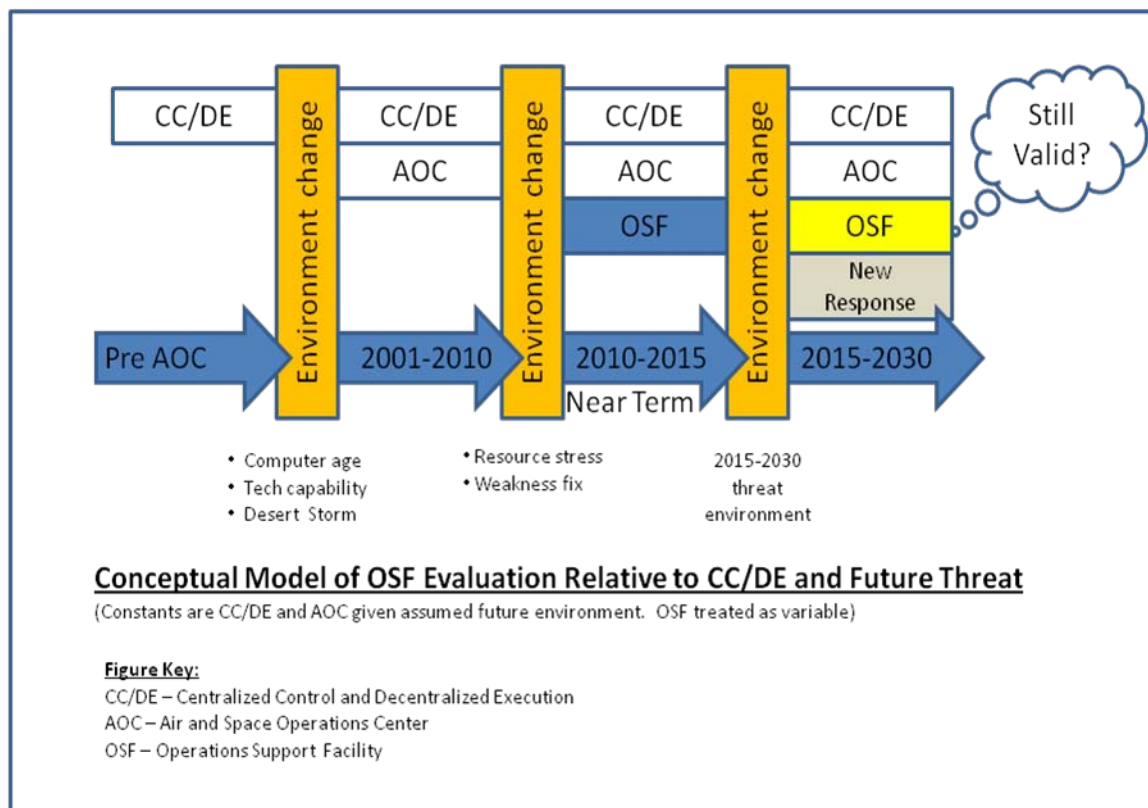


Figure 1. Concept of Operations Support Facility and centralized control/decentralized execution compatibility analysis

The paper begins by describing today's Air Operation Center construct and its relationship to centralized control/decentralized execution in order to establish requirements any air-centric C2 system must meet. Next, the analysis looks at near-term problems facing the force structure of the Air Operations Centers which underwrites the requirement for an Operations Support Facility construct. Then, the analysis moves forward in time to explore how a fully implemented Operations Support Facility construct would fare against anticipated future threats including space and cyber and what emerging C2 requirements these threats suggest relative to centralized control/decentralized execution. Lastly, the Operations Support Facility construct is weighed against the derived requirements dictated by centralized control/decentralized execution for C2

systems to assess its future validity. Supporting this analysis are the following assumptions which add risk to the analysis but are beyond the scope of this paper to resolve. Each would warrant additional study on its own.

- Communications architectures for voice and data exist and will handle the worldwide data load between the Operations Support Facility and all of the Air Operations Centers. The communications architecture can be protected and made secure but will suffer temporary disruption from periodic system failures or external attack.
- Multi-level security solutions will exist to allow the Operations Support Facility to handle data from different Air Operations Centers coordinating with different coalition partners and different security levels.
- The Operations Support Facility construct will achieve desired reductions in the overall Air Operations Center enterprise footprint.
- The Air Force will achieve some degree of standard work across the Air Operations Centers to support centralizing some tasks in the Operations Support Facility via reachback.
- The Theater Air Control System can survive a directed energy threat and preserve functionality of the tasking and mission planning chain from the Air Operations Center to weapon system operators.

With an understanding of the question, the analytic approach, and the assumptions, the analysis begins with examination of the Air Operations Center's role.

The Air Operations Center: Senior Element of the Theater Air Control System

The Air Operations Center is the senior C2 element of the Theater Air Control System. The Theater Air Control System “is the mechanism for commanding and controlling theater air and space power.”³ Figure 2 illustrates the Theater Air Control System.

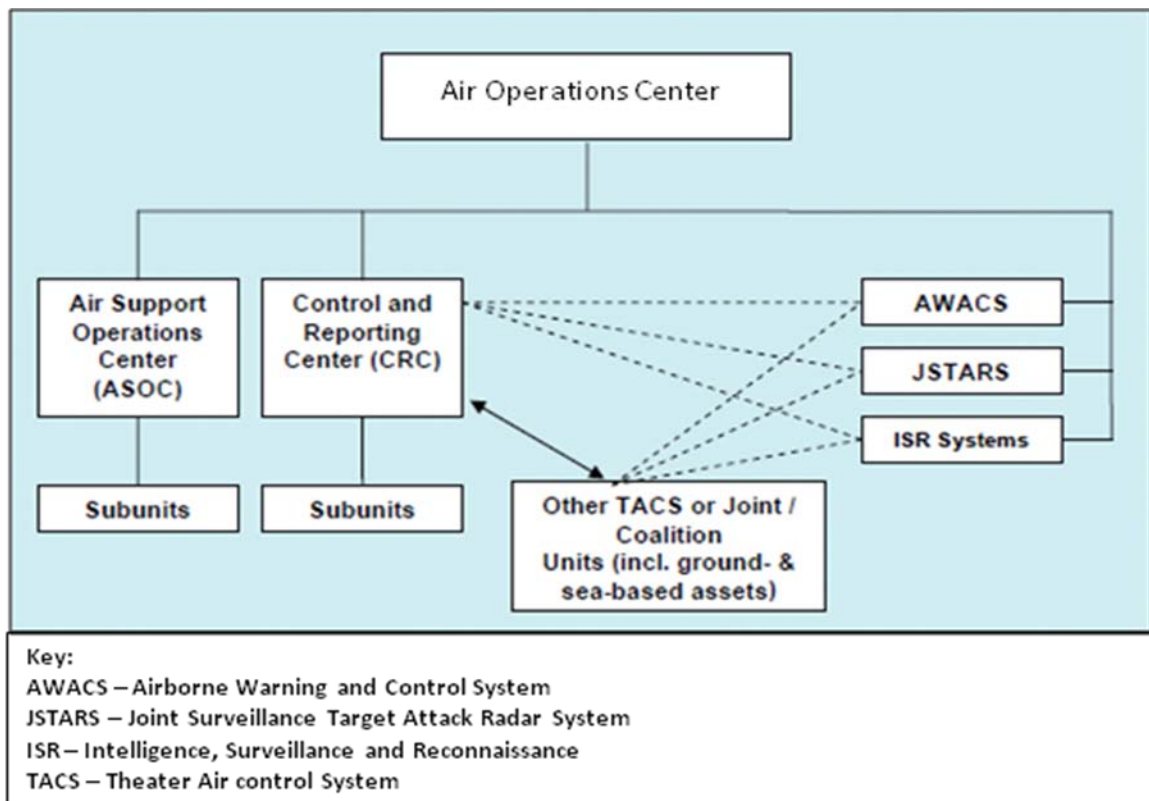


Figure 2. Theater Air Control System organization (Adapted from Air Force Doctrine Document 2-1.1, *Counterair Operations*, 1 Oct 2008, 13)

The Theater Air Control System is comprised of multiple airborne and ground elements, which allow the JFACC to conduct tailored C2 of air and space operations across the spectrum of conflict. When the JFACC is designated the Area Air Defense Commander, Airspace Control Authority, or Space Coordinating Authority, these functions are also performed through the Air Operations Center.

The Air Operations Center is the JFACC's operations command center within the Theater Air Control System. Globally, twelve operational Air Operations Centers share a standardized baseline configuration called the Falconer Air Operations Center (the AN/USQ-163 is the

program of record).^{II} Modifications to the Falconer baseline are made by Air Operations Center commanders to support their specific mission requirements. Elements of the Theater Air Control System are laced together by a variety of communications systems that transmit voice communications, sensor data, and other information and data streams used by the JFACC to synchronize the employment of widely dispersed assets.

The Theater Air Control System is an organic Air Force weapon system and as such remains under operational control of the Commander Air Force Forces in a given theater.⁴ With this broad responsibility, issues such as span of control, strategic perspective, and situational awareness of tactical operations are readily apparent. The Tenet of centralized control/decentralized execution is a fundamental principle addressing these concerns and guiding employment of the Theater Air Control System.

^{II} The twelve operational Air Operations Centers and their assigned Component Numbered Air Forces are in the table below. Eleventh Air Force is not a Component Numbered Air Force, but does have an Air Operations Center assigned. Air Operations Centers are designated “geographic” or “functional” per their assigned Component Numbered Air Force mission (Fourteenth Air Force and Eighteenth Air Force are unique and not based on AN/USQ-163). Guidance is found in Headquarters United States Air Force Program Action Directive 06-09.

Geographic Air Operations Centers (AOC) [Owning Command]		Functional AOCs [Owning Command]
601AOC [1AF (AFNORTH)]	611 AOC [11 AF (non-component)]	608 AOC [8 AF (AFSTRAT)]
603 AOC [3 AF (AFEUR)]	612 AOC [12 AF (AFSOUTH)]	614 AOC [14 AF (AFSTRAT)]
607 AOC [7AF (AFKOR)]	613 AOC [13 AF (AFPAC)]	618 TACC [18 AF (AFTRANS)]
609 AOC [9AF (AFCENT)]	617 AOC [17 AF (AFAFRICA)]	613 AOC [23 AF (AFSOF)]

The Air Operations Center: Enabler of Centralized Control and Decentralized Execution

The Air Operations Center, and the rest of the Theater Air Control System, was conceived to enable C2 of air and space power consistent with the tenet of centralized control/decentralized execution. Air Force doctrine defines these principles as follows:

Centralized control of air and space power is the planning, direction, prioritization, synchronization, integration, and deconfliction of air and space capabilities to achieve the objectives of the joint force commander.⁵

Decentralized execution of air and space power is the delegation of execution authority to responsible and capable lower-level commanders to achieve effective span of control and to foster disciplined initiative, situational responsiveness, and tactical flexibility.⁶

Centralized control/decentralized execution is the fundamental principle ensuring the appropriate level of command makes decisions regarding the employment of air power. It requires a single airman with broad perspective to ensure air power's limited but highly desirable assets are utilized effectively and efficiently, while ensuring concentration of effort and economy of force. The JFACC embodies this single airman.⁷

The JFACC exercises “centralized control” using the Air Operations Center. Through the rest of the Theater Air Control System, the JFACC employs “decentralized execution.” This allows the JFACC to organize C2 of air and space assets in a manner which considers span of control and supports subordinate Theater Air Control System elements and operational units, ensuring that they comply with commander’s intent and perform tasks for which they are most qualified. The Air Operations Center and its communications infrastructure is vital to ensure timely two-way communication of commander’s intent and tasking to lower echelons of command.

Current C2 System Requirements Supporting Centralized Control and Decentralized Execution

Based on the preceding discussion, Table 1 distills common requirements any air-centric C2 system must meet to support centralized control/decentralized execution. As a candidate element of the Theater Air Control System, the Operations Support Facility construct must also support these requirements.

Table 1. Summarized requirements of C2 tools imposed by centralized control/decentralized execution

Label	Centralized Control/Decentralized Execution Requirements	How Accomplished now sans Operations Support Facility
R1	Single airman in charge	JFACC identified or commander identified
R2	Broad perspective maintained by air power manager (JFACC)	Air Operations Center provides communication infrastructure and specialized cells to provide JFACC situational awareness, gain Joint Force Commander intent and communicate with supported and supporting commands
R3	Manager applies air assets most effectively and efficiently against prioritized targets	Air Operations Center internal processes support joint prioritization of effects for air assets and tasking of air assets accordingly
R4	JFACC able to communicate commander intent	Air Operations Center process publishes and distributes commander intent, guidance and tasking documents
R5	Span of control maintained	<ul style="list-style-type: none"> Theater Air Control System communications and C2 architecture designed to operate hierarchically (but can be bypassed)⁸ Air Operations Center communication infrastructure and liaison officers enable strategic and operational commanders to monitor execution
R6	Avoids micromanagement of execution issues better managed by subordinate commanders	<ul style="list-style-type: none"> Planning and publication of JFACC intent documents communicates guidance to subordinate commanders Liaison officers in Air Operations Center from subordinate units, ensure collaborative planning between operational and tactical level commands
R7	Higher level commanders able to assume control of execution, if needed	Theater Air Control System communications architecture allows Air Operations Center leaders to direct tactical action when required
R8	Higher level commanders able to direct mission changes as situation dictates	Air Operations Center communication system enables communication with appropriate control node or execution entity to direct changes

Problems with the Air Operations Center Construct Today

With the preceding background in mind, this section explores the challenges the Air Operations Center construct is experiencing which are driving innovations such as the Operations Support Facility construct. The three key challenges the Air Operations Center construct faces are communications dependence, sustainability cost, and manning constraints.

Communications Dependency

The Air Operations Centers are communications intensive. These communications systems are vulnerable to cyber-attack through denial or exploitation. A successful attack using either method could result in mission degradation or failure.⁹ While this paper assumes technical solutions will preserve Air Operations Center communications in the future, occasional successful attacks or interruptions are inevitable in an opposed cyber environment.

Cost and Manning Constraints

The Air Operations Center construct is costly and facing manning shortfalls. Across the Future Years Defense Program, the Air Operations Center construct shows a shortfall of approximately \$600 million.¹⁰ Additionally, to operate the Air Operations Center weapon system requires trained and skilled operators. Table 2 illustrates the manning shortfalls the Air Operations Center construct has experienced in recent years. Manning requirements have increased 30% in two years, despite an environment of decreasing manning Air Force wide.¹¹ While the shortfall percentage has declined, the improvement has been achieved through longer deployments of personnel and taking from other organizations. The next section describes the Operation Support Facility Construct and its application to these challenges

Table 2. Air Operations Center construct manning shortfalls

Year	Manpower Requirement	Shortfall	Percent shortfall
2007	3907	1146	29% ¹²
2008	4000	800	20% ¹³
2009	5743 ^{III}	670	12% ¹⁴

Why Consider the Operations Support Facility?

As presently envisioned, the Operations Support Facility will consist of an AN/USQ-163 Falconer with staff serving in all five Air Operations Center divisions.¹⁵ The Operations Support Facility provide Component Numbered Air Force Air Operations Centers with data backup and storage, continuity of operations capabilities, readily deployable equipment and personnel, reachback operations, and a core capability for Air Operations Center training and experimentation.¹⁶ These capabilities address Air Operations Center construct concerns in several ways.

The Operations Support Facility construct mitigates loss of communications or data from deliberate cyber attack or non-hostile system failures. Collin S. Gray, describes a good strategy as being tolerant of faults, degrading gracefully, and being flexible in its execution.¹⁷ By serving as a backup point for Air Operations Center data, other units may still access the last data available if communication with the Air Operations Center is lost. When the Air Operations Center returns to operation, it can refresh from the Operations Support Facility if its organic data was damaged. Additionally, the Operations Support Facility can provide a continuity of operations option to the JFACC if relocation becomes necessary.¹⁸

^{III} This number is total authorizations; comparative numbers from 2007 and 2008 were total requirement. This number also includes the 617 Air Operations Center which was not included in 2007 and 2008 due to it being newly created.

The Operations Support Facility addresses two human resource stresses: access to trained operators and access to skilled specialists. The Operations Support Facility can provide trained operators and equipment that can forward deploy to augment standing Air Operations Centers.¹⁹ Ultimately, the Operations Support Facility may perform some Air Operations Center functions remotely through reachback to reduce the forward manning footprint and system costs.²⁰

Pooling specialty teams to provide services remotely to many customers is feasible. The intelligence community has demonstrated this ability.²¹ A RAND Corporation study identified 46 Air Operations Center products, of which 31 could potentially be produced remotely. Examples are the Sequel Plan, the Air Control Order Changes, and the Order of Battle Updates. Associated with these 31 products, are twelve Air Operations Center teams RAND identified as candidates to locate remotely and provide pooled services. These findings require refinement and further study by the operational community as the Operations Support Facility construct matures, but the potential exists to burden shift in some of these areas.²²

These opportunities make the Operations Support Facility appealing in terms of resource constraints, system availability and data reliability. The next analysis step is expanding the requirements of Table 1 by anticipating what the future threat environment will impose on C2 systems relative to the tenet of centralized control/decentralized execution.

The Future Threat Context for the Air Operations Center and Operations Support Facility

The US and its allies must anticipate a threat environment of simultaneously expanding threats at both the high-end and low-end of warfare underscored by increasing risks from proliferation of weapons of mass destruction and sophisticated cyber threats. Adversaries will

include both state and non-state entities employing traditional, irregular or catastrophic methods of warfare in a blended manner for maximum disruption.²³

High-end Challenge

At the high-end of the conflict spectrum are peer competitors employing synchronized advanced capabilities in the mediums of air, land, sea and cyber simultaneously. These adversaries will display robust anti-access and area denial capabilities, potentially even employing weapons of mass destruction to impede US military operations.²⁴ Both China and Russia are likely competitors with China possessing formidable anti-access, anti-space and cyber warfare abilities.²⁵ This not only drives the need for development of traditional military capabilities, but also expands the problem into the weaponization of space.²⁶ Unfortunately, similar challenges exist at the low-end of the conflict spectrum as well.

Low-end Challenge

The US and its allies will continue fighting protracted, low-level conflicts against state and non-state actors for popular support and legitimacy, similar to today's conflict in Afghanistan.²⁷ The enemy strategy will be one of cost-imposing attrition and exhaustion; sapping our national wealth, will to fight, and international legitimacy.²⁸ In many cases, the enemy will be educated, technologically skilled, difficult to locate and attack, distributed, and not bound by western norms of warfare.²⁹ These adversaries are learning organizations. As we add 20 years of experience to this enemy, they will grow more effective in attacking asymmetrically. Intelligence, surveillance and reconnaissance capabilities feeding our C2 systems will be vital to anticipate and combat both low-end as well as high-end threats.

Targeting C2 and Intelligence, Surveillance and Reconnaissance

C2 and intelligence, surveillance and reconnaissance systems will be attacked to disrupt our detection and engagement operations against traditional and irregular objectives. These attacks can come from state actors like China through sophisticated cyber warfare teams or from well-educated terrorists.³⁰ High-end adversaries may employ directed energy weapons in the next 20 years.³¹ Microwave pulse weapons could effectively destroy an entire air defense system or command and control network if not protected.³²

Irregular adversaries will leverage asymmetric advantages to limit the effectiveness of our intelligence, surveillance and reconnaissance capabilities. They will locate potential targets in urban areas creating greater chance for collateral damage.³³ They will find ways to avoid detection, utilize deception, and present only fleeting targets to work inside our observe-orient-decide-act loop.³⁴ Thus, time sensitive targeting will continue to grow in importance, despite a more complex decision making environment with a shrinking timeline. However, the fastest timeline in the future will be cyber operations.

Primacy of Cyber Operations

Cyber warfare will grow in significance, due to cyber's potential for system lethality and speed of attack. Cyber attacks, with global reach and fighting at machine speeds, have the potential to cripple operations in fractions of seconds by destroying communications, data, and systems hardware; rendering a JFACC incapable of C2 before the first air or space assets have even received commands.³⁵ Indeed, future air and space operations will consider cyber superiority and counter-cyber operations integral to air and space operations.

What Does the Future Mean for C2 Systems?

Future C2 systems must improve in key areas supporting centralized control/decentralized execution. They must improve agility, collaboration with sister services and other organizations, synchronization of actions, the ability to decentralize and distribute actions,³⁶ and survivability.³⁷

Agility

Agility must increase due to growth in fleeting targets, particularly in irregular low-end war, and the effects of bureaucracy and cyber on decision timelines. While increasing the ability to detect and engage fleeting targets, the Air Operations Center must maintain capabilities for traditional static targeting in high-end conflicts. Further adding complexity, C2 systems must counter adversaries who mix traditional and irregular methods as Hezbollah did against Israel in 2006, greatly hindering a conventional adversary's efforts.³⁸ Agility involves both speed and quality of decision-making.

Speed of decisions must compress to stay inside the enemy decision loop while still maintaining decision quality. Future enemies will have a decision-making speed advantage because they are unencumbered by western powers' decision-making bureaucracy.³⁹ Moreover, automated cyber threats can make decisions in fractions of a second.⁴⁰ Shrinking timelines means decision tools must support commanders making decisions with imperfect information in complex situations where demands outstrip assets.⁴¹

Collaboration and Synchronization

The Air Operations Center must improve collaborative planning with sister service elements, coalition, and non-Department of Defense organizations. Planning will be parallel, distributive and supported by reachback.⁴² C2 systems must facilitate rapid communication

between stakeholders, assist with decision-making, and allow for proper security filtering in coalition and multi-security classification environments.⁴³

To prioritize limited resources requires information sharing regarding proposed targets, desired effects, and relative importance of operations. The Air Operations Center has a critical role coordinating and synchronizing the effects of diverse assets often brought together from far distances (long-range bombers, tankers, fighters, intelligence, surveillance, reconnaissance and space assets). This level of synchronization is best performed through a centralized control authority, who then delegates employment of asset capabilities to a subordinate tactical commander.⁴⁴ Thus, the requirements for collaboration, coordination and synchronization tools over secure networks are critical.

Decentralization, Distribution and Survivability

Wide variance in scope and character of conflicts over the next 20 years will necessitate flexibility in C2 decentralization. Low-end differs from high-end conflict in terms of target sets and level of effort applied to different missions. While more centralized control may lead to concentration of effort in high-end war, ground commanders require more control over supporting assets in low-end warfare. Lt Col Clint Hinote, in his monograph on centralized control/decentralized execution, proposes five considerations when determining the level to decentralize control of air assets. (1) What is the nature of the operation? (2) Where should flexibility be preserved? (3) How many assets are available? (4) What is the geographical range of effects? (5) Who has the best situational awareness?⁴⁵ These five questions illustrate the degree to which decentralization and centralization of control will continue to move on a sliding scale based on the needs of the conflict. But, how do we factor in degradation of Air Operations Center functionality due to system failure or attack?

Decentralization and distribution of Air Operations Center functions must increase to offset risks to connectivity survival. The system must be capable of degrading gracefully and predictably, and when part of it fails, that failure must not prevent other workarounds.⁴⁶ Thus, subordinate, adjacent and higher echelons of command must have access to Air Operations Center planning databases so other planners can continue to fight in the event of Air Operations Center C2 disruption.⁴⁷ This requires redundant data storage, multiple communication paths, and continuity of operations procedures.

Additional C2 System Requirements from Future Environment

Considering the future threat environment, Table 3 presents my additional derived requirements imposed on C2 systems to support centralized control/decentralized execution.

Table 3. Additional Future centralized control/decentralized execution requirements on C2 systems

Label	Centralized Control/Decentralized Execution Requirements of C2 Systems in Light of Future Threat	Note
R9	C2 systems increase communication and collaboration capability of distributed commanders, planners and executors	Existing requirement, but scope and degree increase
R10	C2 systems support increase in commander decision speeds	Offset bureaucratic issues, incomplete information and volatile, uncertain, complex and ambiguous environment ⁴⁸
R11	Clarity of levels of centralization and decentralization	All parties must know where decision making authority is, or has been delegated to, in a fluid environment with multiple actors participating distributively and collaboratively
R12	Capability survivability	System must degrade gracefully and predictably, not be brittle
R13	Lower level commanders able to operate decentralized if isolated from Air Operations Center	C2 architecture must not prevent decentralized action due to loss with centralized authority

The 13 requirements from Table 1 and Table 3 represent the criteria to support centralized control/decentralized execution in the future environment. In the next section, I examine how effectively the Operations Support Facility construct meets these measures.

Answering the Question: Are Centralized Control/Decentralized Execution and the Operations Support Facility Construct Compatible?

Ultimately, the Operations Support Facility construct does not violate any of the 13 criteria centralized control/decentralized execution levies on C2 systems. Several of the criteria are enhanced, particularly in the area of survivability and continuity of operations. However, there are risks posed by resource allocation and the potential increase of decision cycle time, which must, in fact, contract. Discussion of the Operations Support Facility construct relative to the requirements will be topical, rather than sequential. For the reader's convenience, I list the requirements prior to the section in which they are discussed.

Operations Support Facility Construct Versus Requirements 12 and 13

R12	Capability survivability
R13	Lower level commanders able to operate decentralized if isolated from Air Operations Center

The Operations Support Facility construct supports Air Operations Center functional survivability through geographic dispersion and data backup.⁴⁹ Proof of concept for stateside facilities providing continuity of operations capabilities to overseas Air Operations Centers has been demonstrated (R12).⁵⁰ Additionally, using standardized hardware, systems, processes, and products, provides solid building blocks to enable a single Operations Support Facility to provide continuity of operations for multiple Air Operations Centers.⁵¹ It also facilitates subordinate commanders operating decentralized if their connectivity with the Air Operations Center is lost. If a subordinate commander loses connectivity with the Air Operations Center, they can still access necessary databases that were backed up and stored remotely (R13).

Operations Support Facility Construct Versus Requirements 2, 4, 7, 8, and 9

R2	Broad perspective maintained by air power manager (JFACC)
R4	JFACC able to communicate commander intent
R7	Higher level commanders able to assume control of execution, if needed
R8	Higher level commanders able to direct mission changes as situation dictates
R9	C2 Systems increase communication and collaboration capability of distributed commanders, planners and executors

The Operations Support Facility construct supports the JFACC maintaining a broad perspective via reachback to experts, and collaborative planning with remote elements (R2, R9). The robust communications system which provides the JFACC a continuity of operations capability, simultaneously imparts the ability to communicate commander's intent, assume control of execution, and direct mission changes if required (R4, R7, R8). The ability to issue commands from the Operations Support Facility does however raise the question of its command relationship to other C2 nodes.

Operations Support Facility Construct Versus Requirements 1 and 6

R1	Single airman in charge
R6	Avoids micromanagement of execution issues better managed by subordinate commanders

Command relationships between the Operations Support Facility and Air Operations Centers must be clear. Developing guidance states the Operations Support Facility commander is a supporting commander to the JFACC, and not in the operational chain of command of any geographic or functional combatant commander.⁵² This serves to ensure the role of the JFACC as the single airman in charge is not diluted (R1). Simultaneously, it avoids risk of the Operations Support Facility Commander micromanaging air operations (R6). There is a command relationship risk in terms of span of control and resource allocation, however.

Operations Support Facility Construct Versus Requirements 3 and 5

R3	Manager applies air assets most effectively and efficiently against prioritized targets
R5	Span of control maintained

Apportionment of the Operations Support Facilities' capabilities and capacity between Air Operations Centers, poses a risk to centralized control/decentralized execution. Most commanders prefer organic capabilities over which they have absolute control.⁵³ The Operations Support Facility will support multiple theater JFACCs. The concern arises as to how the energies of the Operations Support Facility will be apportioned to the various theaters, who will do that apportionment (R3),⁵⁴ and the risk of exceeding its span of control or capacity (R5). Initial thinking indicates Air Combat Command, as a force provider to Joint Forces Command, will present the Operations Support Facility to combatant commanders and their applicable Component Numbered Air Forces as a supporting capability for engaged forces.⁵⁵ Until success of this command relationship is demonstrated, JFACCs may question outsourcing primary Air Operations Center functions to the Operations Support Facility.

Operations Support Facility Construct Versus Requirements 10 and 11

R10	C2 systems support increase in commander decision speeds
R11	Clarity of levels of centralization and decentralization

The Operations Support Facility construct also presents concerns for speed of decision making in a more volatile, uncertain and collaborative environment (R10, R11). The Operations Support Facility construct does not violate these requirements, and may in fact enhance them, but the same capabilities that may improve communication and data availability, risk negatively affecting decision convergence. Data and dialog (collaboration) are necessary for idea development, but large amounts of data can slow convergence on a decision. Similarly,

coordination is required to ensure unity of effort and maximization of effects, but can be time consuming. Efforts to introduce new collaboration partners, new coordination processes, and additional sources of data into the JFACC decision process, could work counter to reducing decision cycle time. This risk is heightened by potential delays from Operations Support Facility resources apportioned to other efforts.

At the end of the analysis, the Operations Support Facility construct supports the centralized control/decentralized execution requirements. It is not however without the identified risks. The challenge, as with any new system is to mitigate risks through careful implementation while continuing to pursue desired benefits.

Conclusion

The question I set out to answer was whether the Air Operations Center Operations Support Facility construct will support the tenet of centralized control/decentralized execution considering the anticipated C2 environment in the next 20 years. My analysis shows it does, although there are some risks to avoid. This question and analysis is only one facet of the Operations Support Facility construct, however.

There are still valid concerns that exist regarding the Operations Support Facility construct as listed in the assumptions at the beginning of this paper. Some concerns are technical risks, such as the security of communications networks, multi-level security solutions, and the ability of the Theater Air Control System to survive directed energy attacks. Some concerns are manpower and implementation risks. Other concerns are process risks, as in the ability to standardize work across all Air Operations Centers to enable task offload. These concerns deserve further research. However, the Operations Support Facility construct meets the C2 requirements driven by the tenet of centralized control/decentralized execution.

Noting concerns regarding the Operations Support Facility construct, alternate solutions have been considered including developing multiple Operations Support Facilities, building smaller Air Operations Centers and more of them, or using paired Air Operations Centers backing up one another. The first two of these ideas exacerbate the current manning and funding problem. To man the proposed Air Operations Center and Operations Support Facility constructs, the Air Force finds it must only staff Component Numbered Air Forces at a level supporting response to Phase 0 (Shape) and Phase 1 (Deter) operations. USAFCENT is the exception to this manning constraint since it is in Phase 4 (Stabilize) operations.⁵⁶ Proposing further expansion of the Air Operations Center enterprise manpower requirement beyond a single Operations Support Facility is unsupportable in this environment.

The idea of using paired Air Operations Centers instead of the Operations Support Facility construct is also a suboptimal solution. It gains none of the benefits of pooling resources at a central location, and it again exacerbates manning concerns. Simply to execute current Component Numbered Air Force missions and reduce risk of surge requirements, the prohibition against dual-hatting^{IV} Air Force Forces staff and Air Operations Center personnel has been eliminated, and a Rapid Augmentation Team is being created to bridge manpower gaps envisioned during contingency operations.⁵⁷ To add the additional burden of backing up another Air Operations Center would add to a steady state workload already above the level of resources available. Air Operations Center pairing is not a superior course of action compared to the Operations Support Facility construct.

^{IV} Dual-hatting within the Numbered Air Force is the concept of sharing duties between Air Force Forces staff (often referred to as AFFOR staff or A-staff) and Air Operations Center personnel. By design these two manpower pools are supposed to be separate with distinct functions. Dual-hatting puts at risk personnel failing to perform their primary task due to their dual-hatted role. It also masks manpower problems by making a position in the Air Operations Center or the Air Force Forces staff appear filled when it is not.

The Operations Support Facility construct addresses some immediate needs, and provides leveragable opportunities to improve effectiveness in the areas of collaboration, coordination, and overall C2 System survivability. The US should implement the Operations Support Facility construct to improve robustness of the Air Operations Center system in light of future threats.

Ultimately, a new system requires new thinking, but in the context of past lessons learned. At the intersection of the future threat, the experience of past air power leaders, and the technology developed to support our mission, we will find an airman delivering effects with tools developed by others. The Operations Support Facility construct supports the wisdom of past airmen on how to command and control air assets, and preserves the tenet of centralized control and decentralized execution.

Notes

1. Air Force Doctrine Document (AFDD) 2, *Operations and Organization*, 3 April 2007, 39.
2. Air Force Doctrine Document (AFDD) 2, *Operations and Organization*, 3 April 2007, 69-70.
3. Air Force Doctrine Document (AFDD) 2, *Operations and Organization*, 3 April 2007, 69.
4. Air Force Doctrine Document (AFDD) 2, *Operations and Organization*, 3 April 2007, 69-70.
5. Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*, 17 November 2003, 28.
6. Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*, 17 November 2003, 28.
7. Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*, 17 November 2003, 28-29.
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